

# CHP EPC: Building On Success

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# By the Numbers



- Founded in 1887
- ~35,000 Students
- ~8,000 Faculty and Staff
- 15.6 million square feet
- ~\$32 million Utility Budget
- 5 District Utility Plants



# Presentation Overview

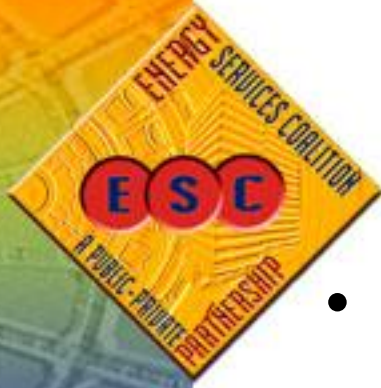


Why CHP  
and Why  
EPC?

Owner's  
Experience

Into the  
Future

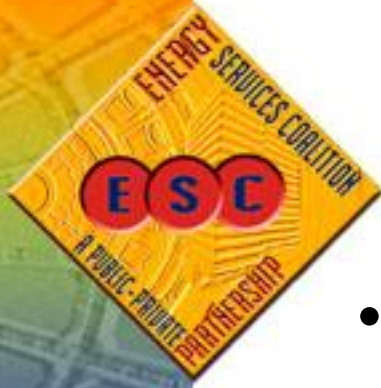
# Why CHP and Why EPC? Strategic Objectives



- Reliable Steam Production
- Air Quality Compliance
- Carbon Reduction
- Energy Reduction
- Increase Resiliency
- Future Growth



# Why CHP and Why EPC? Background

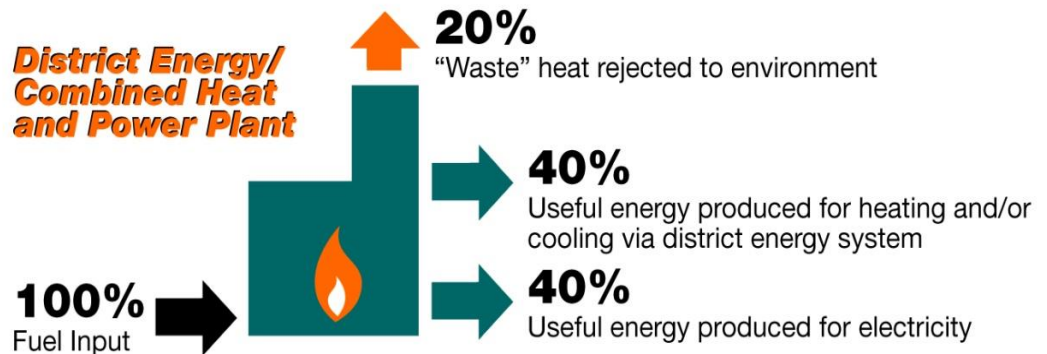
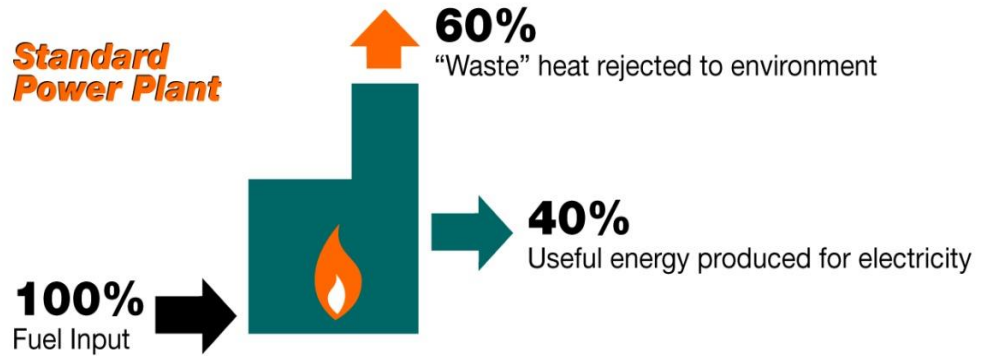


- Potential failure of critical boilers
- High risk for mission critical service
- \$26 million dollar deferred maintenance liability
- No capital funding available
- Air quality compliance (#6 Fuel Oil)
- Local air quality compliance window

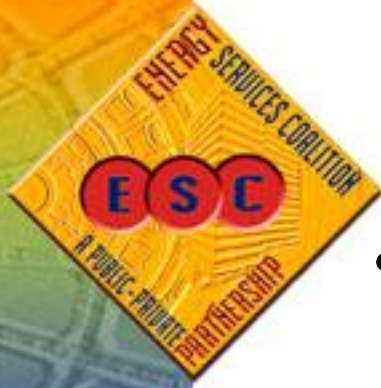
# Combined Heat and Power



## Energy-Efficiency Comparisons



# Owner's Experience: CHP EPC



- \$60 million Performance Contract with Ameresco
- Financed over 17 year period
- (2) 5.5 MW Combustion Gas Turbine Generators with Inlet Cooling
- (2) 50,000 lb./hr. Heat Recovery Steam Generators
- First 2 years produced over \$10 million in guaranteed savings
- Meets projected steam load for 20 years

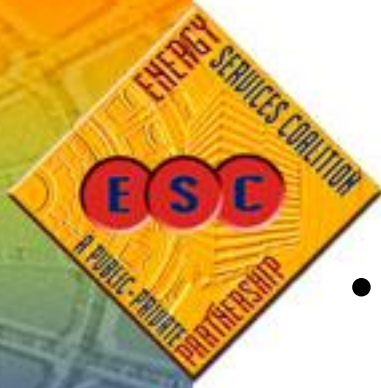
# Owner's Experience: Lessons Learned



- Learning Curve for Design
- Simplify Systems and Controls
- Focus on Fuel Pricing, Run Hours, & Heat Rate
- Do Not Underestimate Interconnection Cost
- It Is Not Over When the Dust Settles
- High Pressure Gas

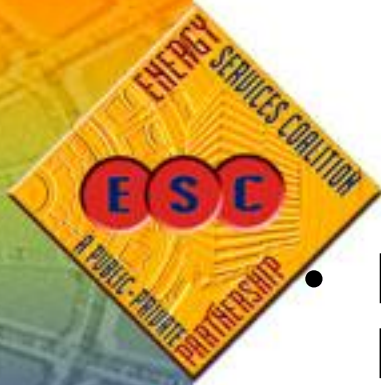


# Owner's Experience: Strategic Benefits



- Addressed \$19 million in Deferred Maintenance Liability
- Improved Reliability for Mission Critical Service
- Improved Resilience
- Black Start Capability
- Energy Efficiency Goals
- Carbon Reduction Goals
- Student Experience
- Consolidated Controls

# Into the Future



- Refining M&V Process
- Operator Protocols
- Load Prioritization & Islanding Procedure
- 2<sup>nd</sup> Steam Turbine Chiller
- Demand Management
- Next 5.5 MW Unit at Centennial Campus





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